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AUTHOR Kramer, Gary L.: And Others
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ABSTRACT

A study involving 42 randomly selected students enrolled in a developmental course at Trident Technical College in Spring 1979 was conducted to determine the impact of career information on students' career awareness, motivation, and academic achievement. Two sections of the course were designated as the control group and received only regularly scheduled remedial instruction. The two treatment sections attended a series of 10 weekly career development sessions in addition to their regular course work. The Mann-Whitney U-Test was administered to both groups as a pre- and post-test to measure their career awareness, and students' grade point ratios (GPR's) and attrition rates were monitored through Fall 1979 to determine the effect of the course on their academic achievement. Study findings revealed no significant difference between the groups' pre-test scores, but the treatment group showed a significantly higher level of career awareness on the post-test than the control group. No significant differences emerged on the GPR and attrition variables during the Summer and Fall follow-up. Eight appendices provide: (1) the research grant application: (2) an academic probationary report for February 1978: (3) an outline of the content of the career development training sessions: (4) the Mann-Whitney U-Test: (5-7) comparative listings of the raw scores on the test: and (8) the groups' Fall 1979 GPR's. (JP)

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A RESEARCH PROJECT ON DEVELOPMENTAL STUDIES & CAREER DEVELOPMENT

Conducted by
Trident Technical College
Charleston, South Carolina
Spring Quarter, 1979

JC 800285

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CONTRIBUTORS

Dr. Gary Kramer, Ph.D.
Dean of Students

Mr. William P. Brickle, M.A.
Student Development Counselor

Mr. Robert J. Rawers, M.S.
Student Development Counselor

Ms. Susan T. Hovermale, M. Ed.
Student Development Counselor

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NORTH CAMPUS DEVELOPMENTAL STUDIES - CAREER DEVELOPMENT PROJECT

PART 1

INTRODUCTION

1. CONTENT - Trident Technical College is a two-(2) year institution providing college educational services to students drawn primarily from its tri-county geographical area. Students are placed in the curricula based upon ststed preference and performance on the Test of Adult Basic Education (TABE) and the North Carolina Math Test. Students whose scores on the above measures do not meet the nimimum requirement for admission to a preferred curriculum are assigned to the Division of Developmental STudies. The instructional objective for the division is to elevate a student to the minimum achievement level required for admission to the desired curriculum.

2. Selection of a career choice has not been systematically measured in students within Developmental Studies. Career information has not been systematically integrated into the instructional program. Career information within divisions of the College has not been systematically measured and can only be inferred from selection of program or major.

2. STATEMENT OF PROBLEM - After entry into the curricula, many Developmental Studeis students are placed on Academic Probation based on GPR for the Quarter. In academic year 1977-78, former Developmental Studies students composed between 46% and 72% of the total College population on probationary status in three of four quarters. (see Appendix I).

   A level of career information has not been related to academic success within the curricula of the Colleges. The division of Developmental Studies does not have data that relates career information to choice of career curriculum, etc. A level of career awareness is thought to be related to the multi-dimensional construct of motivation. High motivation is thought to be related to academic success.

3. REVIEW OF LITERATURE - There is an abundance of literature that suggests that there are four components in the field of Career Development that are valid: 1 - Self-awareness and assessment, 2 - Career exploration, 3 - Decision-making and 4 - Career Placement and Development - (Struck, 1973) (Enlod, 1974). That these concepts can be measured is supported by additional studies (Elterick, 1975), (Hampson, 1975). While the relationship between career Development and academic achievement seems to be a positive one (on an intuitive bases), there has been little reported research in this area (Elterick, 1975).

4. HYPOTHESIS - This study funded by a Trident Technical College Institutional Research Grant (see Appendix II) is intended to investigate the following hypotheses:

   1. There is no significant difference in level of career awareness between students exposed to career information and those who are not exposes.

   2. There is no significant difference in academic achievement of students who have been in the career awareness program and those who have not been in the career awareness program.

5. SIGNIFICANCE - There is a high rate of academic probation among former Developmental Studies students. If students can be determined to have a level of career awareness, a portion of the problem of motivation among students can be isolated. If a correlation between career awareness and academic achievement can be determined, academic retention can be increased and failure reduced by expansion of career awareness programs.

PART II

METHOD

1. SUBJECTS - Subjects were forty-two (42) students in the unit of Developmental Studies at Trident Technical College. Twenty-one (21) of these students were designated as the treatment group and twenty-one (21) as the control group.

2. SAMPLING - Four sections of Reading 062, a developmental course in reading were chosen as subjects for this study. The students in these classes represented varied reading levels, and ages.

3. TREATMENT - Two sections of Reading 062 (a total of 21 students) were designated as the control group and received only the regularly scheduled instruction. The other two sections of Reading 062 (21 students) received in addition to regular reading instruction, a series of ten classes in career development. These ten classes were conducted once weekly for a period of 40 minutes. The classes covered the four main areas of career development 1. Self-Awareness and Assessment, 2. Career Exploration, 3. Decision-making, and 4. Career Planning and Placement (see Appendix III).

   A Career Counselor from Trident Technical College taught all four sections of the career class. The classes consisted of modules that covered the above areas.

4. INSTRUMENTALITY - A pre-test and post-test measure was constructed from the Career Planning Support System (CPSS) (see Appendix IV). The CPSS was converted into Likert Response Questions. The questions were then listed and assigned a number from a table of random numbers. Twenty items were selected for the survey. Each item was scored on a 5 point level according to the following:

   5 Strongly Agree
   4 Agree
   3 Neither Agree nor Disagree
   2 Disagree
   1 Strongly Disagree

   The pre-test measure was administered during the first period of class. The post-test measure was administered during the last period of the class. The control groups as well as the treatment groups received the pre-and post-test measures. The Crites Career Maturity Index was also administered to both groups.

5. DATA ANALYSIS - The Mann-Whitney U-Test[1] (a nonparametric alternative to the T-Test for two independent samples) was used to analyse the difference in pre-test and post-test for the two groups. This test

[1] "The Mann-Whitney U-Test", Fundamental Research Statistics for the Behavioral Sciences, by John T. Roscoe, Holt, Rinehart and Winston, Inc. New York, 1969, pp. 175-180, pp. 294-297.

was chosen because it does not require normality of distribution nor homogeneity of variance for the groups under study.

6. FOLLOE-UP - All subjects were followed up through the fall semester 1979. Their GPR's (grade point ratios) and attrition rate were determined at this point.

7. RESULTS - The Mann-Whitney U-Test revealed no significant difference in the pre-test scores fo the control group and the treatment group. (See Appendix V)

   A significant difference was shown, however, between the post-test scores of the two groups, using the U-Test. The scores were shown to be significantly different at the .05 significnace level using a one-tailed test. (See Appendix VI).

   The change in the maen scores between pre-test scores and the post-test scores were found to be significantly different using a one-tailed U-Test at the .005 significance level. (see Appendix VII).

   The average GPR attained by the treatment group during the fall 1979 quarter was 1.68 (on a 4.0 scale) which was only slightly higher than the control group's average GPR of 1.34. (see Appendix CIII).

   By the Fall 1979 quarter, nine students from the treatment group had dropped out of school and twelve students from the control group had dropped out.

   Future studies on the GPR's and attrition rate of both groups will be done.

8. IMPLICATIONS - Since no significant difference existed between the control group and treatment groups in regards to pre-test scores, it is concluded that the groups chosen were indeed "random samples."

   The significant differences in both the post-test results and the change in the mean scores between the two groups, leads us to conclude that the career development training received by the treatment group was indeed effective in increasing their career awareness and should be used with classes in the future.

   No significant difference can be shown in the GPR's or attrition rate of the two groups. No conclusions can be drawn on the bases of these results because of the high attrition rate resulting in s small sample.

9. RECOMMENDATION - Replicate this study increasing the sample groups to at least 100 students each.

APPENDIX I

ACADEMIC PROBATIONARY REPORT

February, 1978

The Academic Probation list for Winter Quarter 1977-78 indicates that there are 418 students who are presently experiencing academic difficulty in their program. The Counseling Center made a concerted effort to reach each student (i.e., letters, Advisors, telephone). Again the records show that the response had been significantly low, but those who have responded in the past for counseling on the most part improved their situation. The following report is a compilation of both current and comparative data on the North Campus Academic Probationary students.

The Counseling Center, in an attempt to ascertain more information on the probationary student, identified two sub-groups from the main winter listing for comparative analysis. The first group identified was the Developmental Studies group which consisted of 193 probationary students who had one or more Developmental Studies courses prior to entering their curriculum. The 193 probationary student constituted 46% of the total population on academic probation Winter Quarter 77-78 as compared to 54% Fall Quarter and 72% Summer Quarter 1977.

In further checking the records of the students on Academic Probation who had previous work in Developmental Studies, it was found that the average amount of time spent in Developmental Studies was 3 quarters. Also to be more specific, the following information on the individuals is provided:

Number of students who had previous Developmental courses---------193(46%)
Number of students who had taken Developmental English ----------153(36%)
Number of students who had taken Developmental Math ----------156(37%)
Number of students who had taken Developmental Reading ----------141(33%)
Number of students who had taken Developmental Speech/Writing------95(22%)

The second group identified was the regular student group consisting of 225 probationary students who supposedly did not need any Developmental Study courses and went directly into their curriculum. After careful review of each regular student's records, it was found that 33% of that

group needed to be placed in one or more Developmental Study courses. Circumstances identified as probable sources for individuals to be improperly placed were found to be three fold: individuals themselves declined/refused to take Developmental Studies as indicated on their intake-interview sheet, testing out of Developmental studies the first week in the quarter and referred through drop-add to their curriculum, and finally improper or poor placement by Academic Advisor, by not adhering to acceptance letter recommendations.

Further review of regular student's file identified the process by which these individuals met the initial placement requirements in finalizing the Admission's process. Below is the breakdown of that sub-group identified as regular students.

Students who took Placement Test	130
Transfer Students	32
Student who took SAT or ACT	27
Accepted as a Special Student	15
Students having no test scores	20
Audit Student	1
TOTAL	225

Evidence above indicates a possible discrepency somewhere in our follow-up or tracking process for the latter three. The Special and Audit Student in most cases are not required to take a placement test. A review of some of these individual's records this quarter, shows they are taking more than two courses which could possibly add to their dilemma. Also, in looking at the probationary students who took the Institutional Placement test, it was found that the mean score for A/S programs was 5 stanine and the Diploma 4 stanine. Students coming in with SAT scores for Associate Degree programs fell in a range of 700-750 and Diploma 450-650. The above information has been compiled to get a better understanding of the sub-group earlier identified as the regular student and to provide more information to reinforce our counseling efforts.

In looking at the attrition aspects of the probationary problem, records indicate that of the 418 students on Academic Probation only 199 of those students elected to return in the Winter Quarter. This shows a 52% attrition or a non-return of 219 Winter Quarter probationary students as compared to the 58% attrition in the Fall Quarter. A more detailed look at the 199 returning students found that 110 of them were former Developmental Studies students and that 89 were regular students. This could inidcate that students who had prior Developmental Studies are more likely to stay in school after experiencing difficulty. The above findings were true of the Fall Quarter probationary students.

Also, looking at the success rate of the probationary students, a search through current records (Winter Quarter), as compared to Fall Quarter records, show that out of the actual 73 Fall Quarter probationary attending that quarter, 18 of these students returned in the Winter Quarter. The records show that of the 18 returning students in the Winter Quarter, only six of them came off Academic Probation with the remaining 12 still on Academic Probation because their cumulative GPR was under 2.0, but their current GPR for Fall showed considerable improvement.

As of this date the North Campus Counseling Center has counseled with 22% of the students as compared to 18% in the Fall Quarter. Attached is a break-down by Division and curriculum of studnets on Academic Probation.

ACADEMIC PROBATIONARY REPORT

Since the Summer of 1976 there has been an attempt by the Counseling Centers to reach all students placed on Academic Probation. Needless to say for a lack of a better vehicle in reaching these students this attempt has proved fruitless because of the lackadaisical attitude of the Probationary Student.

Therefore the Counseling Centers efforts to reach these students has had fairly successful results, but it must be incidated that follow-up of those who responded for counseling on the most part improved their situation.

The gathering of statistics by the Counseling Center on probationary students has been a developing on-going process since its inception. Information gathered on our Fall quarter probationary student is that there were 173 students placed on Academic Probation, but actually only 73 elected to return this Fall quarter. These students were informed to see a Student Development Counselor for assistance and guidance with their problems. As of this date our records indicate that only 18% of the students have seen a Student Development Counselor.

The following is a compilation of both current and comparative data on North Campus Academic Probationary Students. After many series of consultations with the probationary students it was concluded that there was no one separate or distinct reason that would be representative of the total group but rather a diversity of reasons/problems unique only to that individual. Seen from a Counselor's perspective indicative of the actual counseling sessions is the list of apparent causes for academic difficulty in order of greatest to least causes.

(1) Lack of background or preparation. (2) Poor study habits/ Scheduling of time. (3) Personal Problems i.e. Marriage conflicts, sickness, financial, etc. (4) Heavy course load. (5) Work/School conflict. (6) Improper withdrawal procedures (7) Lackadaisical attitude. (8) Instructor/Students communication.

In reviewing the list for the Fall quarter we see that only 54% of the students on Academic Probation have had one or more Developmental Studies Courses prior to entering their Curriculum as compared to 72% in the previous quarters. This does not indicate a total picture as to where the probationary student is coming from. Therefore in an attempt to develop a better understanding of the situation, individual folders were pulled and the CPP scores reviewed. This attempt was to try and account for the other 46% on Academic Probation who supposedly did not need any Developmental Study courses and went directly into their curriculum.

Findings indicated that these students not requiring Developmental Studies (46%) but going directly into their respective curricula scored at the minimum cut-off scores. Since scores are reported in Stanines and this being a range and not a specific it is possible that these individuals fell somewhere at the very bottom of the range. These findings are only indicative of a small sample and should not be seen as the total picture since many other factors were not considered.

In further checking the records of the students on Academic Probation who had previous work in Developmental Studies it was found that the average amount of time spent in Developmental Studies was 3 quarters. Also to be more specific the following information on the above individuals is provided:

Number of students who had previous Developmental Studies	93 (54%)
Number of students who had taken Developmental English	69 (40%)
Number of students who had taken Developmental Math	79 (46%)
Number of students who had taken Developmental Reading	64 (37%)
Number of students who had taken Developmental Speech/Writing	57 (33%)

Our final findings were very alarming in that we found that out of the 270 students on Academic Probation during the summer quarter only 69 students returned in the Fall. During the summer quarter the Counseling Center saw approximately 47 of the 276 students on Academic Probation. Of the 69 returning students in the Fall quarter only 18% brought their cumulative G.P.R. up to 2.0 or better with the rest only showing progress by maintaining a 2.0 in their current G.P.R.

We as counselors can realize the problem and share a concern with the instructors who strive to teach these students. This situation is very real to us and we don't conclude to have a sure-fire solution to the problem. We do feel that possibly through means of a better reporting and referral system the student who is demonstrating academic difficulty at Mid-term could be identified early and possibly given proper advising and guidance.

To make the above-mentioned system work this would entail the complete cooperation of our faculty informing us through some method of identification. The evaluation process of the "Early Warning System" if for no better name would be indicative of success when after several quarterly reviews there should be a decline in the number of students placed on academic probation and exclusion.

APPENDIX II

TRIDENT TECHNICAL COLLEGE

INSTITUTIONAL RESEARCH GRANT APPLICATION

To All Trident Technical College Faculty and Staff:

If you have an idea for an institutional research project that you could do if you had some extra resources, please complete this application and send it to the vice president you work for. He will attatch his recommendation concerning your proposal to this form and forward it to Institutional Research, Central Office.

We in turn will contact you about your idea within a week after we receive your completed application.

Instructions: This application should be completed by the person who will actually direct the proposed research if the project is funded. Please type the information requested. If you need more space to answer a question, simply continue on a blank sheet of paper.

1. Briefly describe the research you would like to do. Levels of career development have not been systematically measured in students within TTC's Developmental Studies unit. Further, career development instruction has neither been systematically integrated into the Developmental Studies program nor correlated with curriculum academic achievement.

   This research project intends to do the following:

   1. Based upon a random computerized scheduling procedure, students enrolled in the Developmental Studies program at TTC will be assigned to treatment and comparison groups.

      (SEE ATTACHED SHEET)

   2. Research Objectives. What specific questions would the proposed research enable you to answer?

      1. Via a comprehensive career development assessment instrument, determine the level of career development of students placed in developmental studies at Trident Technical College (NC) during the '79 Spring Quarter.

      2. Via implementation of a career development treatment package analysis of pre- post-test scores derived from the project's assessment instrument, determine if significant mean differences occur between the treatment and comparison groups selected from the same population.

      3. Via a follow-up study, determine if significant curriculum academic achievement occurs between the treatment and comparison groups.

3. Importance of Research Objectives. How would the information produced by this research enable Trident Technical College to more effectively or more efficiently accomplish its mission? (Or alternately, how would this information enable you to do your job better or more efficiently?)

   If it can be determined that there is a positive, significant correlation between academic success and career development scores, then it would be recommended that career development instruction be integrated into the Developmental Studies curriculum. Ultimately, retention and attrition rates studies should be made based upon the project's findings.

   If career development instruction is successful, this project is visualized as a continuing effort between Student Affairs and Developmental Studies.

4. Research Plan. How do you plan to accomplish your research objectives? How will you collect the necessary data, and how do you plan to process and analyze this information? How long will it take to complete each phase of the project?

   The research will be undertaken as a joint effort between Developmental Studies and the Division of Student Affairs.

   Classes will be selected for use as treatment and comparison groups. The treatment package will be provided by the Student Development Center research personnel who will also be the principal investigators for the study. (see attachment "B" for description of treatment package).

   Treatment data analysis will be performed by Student Development Center research personnel with the support of the College's Computer Services Center.

   There will be a pre-test and a post-test to determine a level of career awareness among the students serving as subjects.

   During the summer quarter of 1979, the (GPR) of the participating students will be correlated with their post-test scores on the treatment.

5. Budget. How much money do you need to complete this project and how do you plan to use the funds requested?

   The requested funds will be used for administrative support of the proposal. Four areas require funding (as described) above that available within the SDC budget.

   1. Student Assistance - Clerical*
   2. Educational Supplies - Books, texts, and testing materials for the proposal**
   3. Office supplies - Printing and mailing of surveys and follow-up***
   4. Local travel (between North and Palmer, at 16¢ per mile)

   *One student assistant (clerical) is required for the duration of the project. Duties of the assistant include typing of instructional materials, preparation of pre-test, post-test, tests of instructional units, etc. The clerical assistant will also assist in clerical duties related to the following portions of the project.

   **Educational materials will consist of the Strong-Campbell interest inventory, Self-Directed Search, Career Development Inventory, Career Maturity Index, etc. These materials relate to the treatment concept packages.

   ***Printing and mailing includes concept testing materials (some of which must be sent out of state for scoring) and follow-up mailings. (SEE ATTACHED SHEET)

6. What resources can you (or your division office) contribute to the proposed research project?

   1. 1 counselor-research and evaluation specialist
   2. 1 counselor-career development specialist
   3. counseling materials-career development area
   4. supervision

7. What (if any) assistance will you need from Institutional Research or other areas of the College?

   Assistance with use of the College's computer system and SPSS.

   Assistance for classes and classrooms from Developmental Studies. (Already secured by Deans concerned).

8. If this project is funded, how long do you think it will take to complete the proposed research?

   Recommended starting date: 1 March '79 Already approved by Dean

   Recommended completion date: End of Summer Quarter

9. If the proposed research could not be completed until as much as a year after your recommended completion date, would the information produced by the project still be of value?

   Yes, definitely. If successful , this project is visualized as a continuing effort of Student Affairs and Developmental Studies.

10. In your judgement, should the proposed research be done on a regular, continuing basis?

    _____ Yes, the proposed research should be done at least every _____.

    ___X___ No, the proposed research is a special, one-shot project.

11. Your signature _____

    Name _____

    Position _____

12. Date you completed this form _____

APPENDIX III

CAREER DEVELOPMENT TRAINING

PART I

INTRODUCTION

A. RATIONALE: In order to make sound and meaningful career related decisions, students have a need to acquire skills in the following areas:

1. Self-Assessment: the process of learning about themselves, including their interests, values, abilities and goals.
2. Career Awareness and Exploration: the process of becoming aware of work, careers, and occupations that merge with (outcomes) self-awareness.
3. Career Decision-Making: the process of making meaningful career related decisions that merge from self-assessment and career awareness, including strategies for future decision-making.
4. Career Planning and Placement: the process of planning ahead to better approach established personal and career goals that have merged from the relationship between self-assessment, career awareness, and tentative decisions.

B. RELATIONSHIP AND SEQUENCING: the Preceeding skill areas are strongly interrelated, and content or learner outcomes established in area one (1) are built upon in area two (2). Learner outcomes in area 2, as implemented in area 3 become the basis for area 4. Succintly, outcomes are used interrelated by activities in the 4 areas.

PART II

SEQUENCE AND STRUCTURE OF TREATMENT

A. ACTIVITIES IN SELF-ASSESSMENT: Activities in this area are to produce learner outcomes such that students are aware of how to self-assess, (process) and also aware of their:

1. Interests: students will have identified or reinforced their career related interests.
2. Values: students will have identified or reinforced their career related values.
3. Leisure Experience: students will have determined that leisure experiences and lifestyles are effected by career.
4. Abilities: students will have identified or reinforced awareness of abilities (as related to past and future development) as they relate to career.

B. ACTIVITIES IN CAREER AWARENESS AND EXPLORATION: Activities in this area are to produce learner outcomes such that students are aware of how to research careers (process) and also aware of:

1. Factors that affect: job success, advancement and mobility: students will have determined the advantage of being prepared for a variety of jobs; as related to factors such as lifestyle, interests, etc.

2. Occupations for Investigation: Students will have determined a list of occupations for investigation.
3. Occupational Exploration: Students will have determined what information about occupations is important.
4. Resources for Investigating Occupations: Students will have become aware of resources available for occupational exploration.

C. ACTIVITIES IN CAREER DECISION-MAKING: Activities in this area are to produce learner outcomes such that students are aware of how to make decisions (process) and also aware of:
   1. Decision-Making Strategies: Students will have identified strategies used in different situations.
   2. Decision Making Model: Students will have identified a systematic process for making decision which incorporates self and career knowledge.

D. ACTIVITIES IN CAREER PLANNING AND PLACEMENT: Activities in this area are to produce learner outcomes such that students are aware of how to formulate career plans and also aware of:
   1. Goal Setting: Students will have identified and acquired information and skills necessary to reach citizen, leisure and career goals.
   2. A Career Plan: Students will have utilized self-assessment, occupational exploration and decision-making skills in formulating a career plan.

E. DEVELOPMENT OF ACTIVITIES: The activities used in producing the above learner outcomes have been adapted and revised from the following sources:
Model Career Guidance Program for Michigan Community Colleges, G.E. Rhoads, Ph.D., Montcalm Community College, Sidney, Michigan. March 1977.
Model Career Guidance Program For Michigan Community Colleges, Career Guidance Program. Kalamazoo Valley Community College, Kalamazoo, Michigan. February, 1977.

PART III

OUTCOMES

By exposing students to the following career education treatment, students will have acquired a knowledge of the processes of:
1. Self-assessment
2. Career Awareness and Exploration
3. Career Decision-Making
4. Career Planning and Placement

These skill areas can be utilized by an individual at any stage of development, to produce outcomes that are personally meaningful and relevant. Succinctly, these skills, once learned, (as outcomes) are essential to present and future Career Development.

SELF AWARENESS AND ASSESSMENT

In the Self Awareness and Assessment component, the content and activities focus on helping individuals understand themselves and others.

The main concepts of this component involve individuals' awareness and acceptance of themselves, the awareness and acceptance of others, and the development of interpersonal skills.

Within this component, individuals begin to develop an awareness of their personal characteristics--interests, aspirations, aptitudes, abilities, and values and the characteristics of others.

Individuals learn techniques for self appraisal and the analysis of their personal characteristics in terms of life-career options.

They begin to formulate plans for self improvement. Individuals become knowledgeable about the interactive relationship of individual and group roles in such a way that they develop personal standards and a sense of purpose in life.

Outcomes of this component reflect a person who can utilize self knowledge in life-career planning and in the fostering of positive interpersonal relations.

Individuals become self-directed in that they accept responsibility for their own behavior.

Self Awareness and Assessment is a life-long process of discovering individuals traits, developing a personal profile, and understanding that these traits and profile are constantly changing.

CAREER AWARENESS AND EXPLORATION

The content and activities found in this component focus on the interrelatedness of family, citizen, leisure and occupational roles; home, school, work, and community settings; and the various events such as job entry, marriage, and retirement, which may occur during the life stages of individuals.

Emphasis is given to knowledge and understanding of the structure and dimensions of the education, work, family, citizen, and leisure worlds.

For example, individuals will learn that there are many occupations and industries which comprise the world of work and that these occupations and industries can be grouped in a number of ways.

Such groupings can serve as an avenue through which individuals learn of the similarities and differences among workers and work places.

Emphasis is placed on the individual's learning of selected associations among specific occupational requirements, personal characteristics, skills, interests, values, and aspirations.

The rapidity of social and technological change and other factors affecting the flux of the work force and the work situation are elements considered in this component.

The individual begins to view the basic dimensions of the worlds of education, work, family, citizen, and leisure from three perspectives-sociological, psychological, and economic.

The sociological dimension encompasses such components as societal limitations on the individual's choice of occupation and the purposes of education, work, leisure, family development, and citizen involvement.

The economic component refers to such considerations of occupationsl choice as amount of pay, number of hours, fringe benefits, and the cost of various leisure, family, and citizen activities.

The psychological perspective refers to the amount and kind of personal satisfaction an individual receives from education, work, leisure, family, and citizen involvement, and the internal factors which affect this satisfaction.

As a result of learning about the interactions of these component parts of the worlds of education, work, family, citizen, and leisure, individuals learn of the reciprocal influences of specific activities and can analyze life style preferences.

CAREER DECISION MAKING

The Career Decision-Making component contains content and activities designed to help individuals understand that decision-making is an important task in everyday life.

The central focus of this component is a mastery of decision-making skills related to life-career planning.

Individuals begin to develop skills in this area by identifying the elements of the decision-making process. These elements include gathering information from relevant sources, both external and internal, and learning to utilize the collected information in making informed, reasonable decisions.

Individuals begin to engage in planning activities and to understand that they can influence their future by applying such skill.

They begin to accept responsibility for making their own choices, for managing their own resources and for directing the future course of their own lives.

Other dimensions in this component include the concept of change, space, and time as they affect life-career planning.

Individuals learn of the potential impact of change in modern society and of the necessity of being able to project themselves into the future.

In this way, they can begin to predict the future and to foresee alternatives which they may choose and to plan to meet the requirements of preferred life-career alternatives.

The major educational goals within this component are directed toward facilitating the development of individuals who value decision making and can formulate reasonable life-career plans.

CAREER PLANNING AND PLACEMENT

This component contains content and activities designed to help individuals develop and implement systematic programs to reach career goals.

The individual in this component sets out to acquire prerequisite skills and knowledge which lead to his or her life-career goals.

The individual identifies and uses appropriate resources to acquire these skills and knowledges, and consciously assesses progress toward life-career goals, making whatever adjustments are necessary to maintain progress toward meaningful life-career goals.

The individual, in this component, is demonstrating commitment to life-career plans and goals by taking action.

APPENDIX IV

CAREER DEVELOPMENT CLASS

SECTION _____
SSN: _____

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1. I have learned about job information books such as the Occupational Outlook Handbook.					
2. I have learned about job information books such as The Dictionary of Occupational Titles.					
3. I know about the characteristics of several jobs such as the pay.					
4. I know about the characteristics of several jobs such as the training needed.					
5. I know about the characteristics of several jobs such as the working hours.					
6. I know about the characteristics of several jobs such as job demands.					
7. I know the general activities performed on several jobs.					
8. I know how my personal interests, values, and abilities match those needed on several jobs.					
9. I have learned about filling out a job application form.					
10. I can prepare summary of my qualifications and experience.					
11. I know what is important to present about myself in a job interview.					
12. I have learned how to identify my interests.					

(adapted from Career Planning Support System, The Center for Vocational Education, The Ohio State University, Columbus, Ohio, 1976)

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
13. I have learned how to identify my values with the needs in a specific educational program.					
14. I have learned how to match my values with jobs.					
15. I have laerned how to match my abilities with jobs.					
16. I can use brochures as resources to explore occupations.					
17. I can use catalogues as a resource to explore educational programs.					
18. I have learned that on-the-job training programs are required for most occupations.					
19. I know about planning my education to reach a job.					
20. I have learned about decision-making strategies.					

APPENDIX V

MANN-WHITNEY U-TEST -- COMPARISON OF PRETEST SCORES

Ranks of pre-test scores: a=Treatment Group, b=Control Group

SCORES	ALL RANKS	a-RANKS	b-RANKS
51a	1	1	
52a	2	2	
53a	3.5	3.5	
53b	3.5		3.5
56a	5.5	5.5	
56b	5.5		5.5
57b	7		7
58b	8		8
60a	9	9	
62a	10	10	
63a	11	11	
64a	12	12	
65a	13.5	13.5	
65a	13.5	13.5	
66b	15		15
68a	17	17	
68b	17		17
68b	17		17
69b	19.5		19.5
69b	19.5		
70a	21.5	21.5	19.5
70b	21.5		
71b	23		21.5
72a	24.5	24.5	23
72a	24.5	24.5	
73a	26	26	
75a	28	28	
75b	28		28
75b	28		28
76a	30.5	30.5	
76a	30.5	30.5	
77a	32.5	32.5	
77b	32.5		32.5
78b	34.6		34.5
78b	34.5		34.5
82a	36	36	
83b	37		37
84a	38.5	38.5	
84b	38.5		38.5
86b	40		40
93b	41		41
99b	42		42
		ΣRa=390.5	ΣRb=512.5

MANN-WHITNEY U-TEST--COMPARISON OF PRETEST S CORES (cont.)

$$U_a = n_a n_b + \frac{n_b(n_b+1)}{2} - \Sigma R_b$$

$$U_a = (21)\ (21) + \frac{21(22)}{2} - 512.5 =$$

$$U_a = (441 + 231) - 512.5 =$$

$$U_a = 159.5$$

$$U_b = n_a n_b + \frac{n_a(n_a+1)}{2} - \Sigma R_a$$

$$U_b = (21)\ (21) + \frac{21(22)}{2} - 390.5 =$$

$$U_b = (441 + 231) - 390.5 =$$

$$U_b = 281.5$$

U=the lesser of U_a and U_b, so

U=159.5

U=159.5 is greater the table value allowed for a one-tailed test at the .05 level, so we conclude that the data is not statistically significant.

APPENDIX VI

MANN-WHITNEY U-TEST -- COMPARISON OF POST TEST SCORES

Ranks of post-test scores: a= Treatment Group, b= Control Group

SCORES	ALL RANKS	a-RANKS	b-RANKS
55b	1		1
58b	2		2
63b	3		3
65b	4		4
66b	5.5		5.5
66b	5.5		5.5
68a	7	7	
71a	8.5	8.5	
71a	8.5	8.5	
72b	10		10
73b	11		11
74b	12		12
75a	13.5	13.5	
75b	13.5		13.5
76a	15	15	
77a	17	17	
77b	17		17
77b	17		17
78b	19.5		19.5
78b	19.5		19.5
79a	22.5	22.5	
79a	22.5	22.5	
79a	22.5	22.5	
79a	22.5	22.5	
80a	26	26	
80a	26	26	
80b	26		26
81a	29	29	
81a	29	29	
81b	29		29
82b	31		31
83a	32	32	
84a	33.5	33.5	
84a	33.5	33.5	
89b	35		35
93b	36		36
95a	37.5	37.5	
95b	37.5		37.5
97a	39	39	
98a	40	40	
99a	41.5	41.5	
99b	41.5		41.5
		Σ Ra=526.5	Σ Rb=376.5

MANN-WHITNEY U-TEST -- COMPARISON OF POST-TEST SCORES (cont.)

$$U_a = n_a n_b + \frac{n_b(n_b+1)}{2} - \Sigma R_b$$

$$U_a = (21)(21) + \frac{21(22)}{2} - 376.5$$

$$U_a = (441+231) - 376.5$$

$$U_a = 295.5$$

$$U_b = n_a n_b + \frac{n_a(n_a+1)}{2} - \Sigma R_a$$

$$U_b = (21)(21) + \frac{21\ (22)}{2} - 526.5 =$$

$$U_b = (441+231) - 526.5 =$$

$$U_b = 145.5$$

U=the lesser of U_a and U_b, so

U=145.5

U=145.5 is less than the table value allowed for a one-tailed test at the .05 level, so we conclude that the data is statistically significant.

APPENDIX VII

MANN-WHITNEY U-TEST--COMPARISON OF CHANGES IN MEAN SCORES FROM PRE-TEST TO POST TEST BETWEEN THE TWO GROUPS

Ranks of changes in means: a=Treatment Group , b=Control Group

SCORES	ALL RANKS	a-RANKS	b-RANKS
-23b	1		1
-19b	2		2
-10b	3		3
-5b	4		4
-4b	5		5
-3b	5.6		6.5
-3b	5.6		6.5
0b	8.5		8.5
0b	8.5		8.5
1b	10		10
2a	11.5	11.5	
2b	11.5		11.5
4a	13.5	13.5	
4b	13.5		13.5
5a	15.5	15.5	
5b	15.5		15.5
8a	17.5	17.5	
8a	17.5	17.5	
8b	17.5		17.5
8b	17.5		17.5
9a	20.5	20.5	
9a	20.5	20.5	
10b	22		22
11a	23	23	
12a	24.5	24.5	
12a	24.5	24.5	
13a	27	27	
13a	27	27	
13b	27		27
14a	29	29	
15a	31	31	
15a	31	31	
15a	31	31	
17a	33	33	
19a	34.5	34.5	
19a	34.5	34.5	
20a	36.5	36.5	
20a	36.5	36.5	
25b	38		38
28a	39	39	
33a	40.5	40.5	
33b	40.5		40.5
		ΣR_a=619	ΣR_b= 258

MANN-WHITNEY U-TEST --COMPARISON OF CHANGES IN MEANS (cont.)

$$U_a = n_a n_b + \frac{n_b(n_b+1)}{2} - \Sigma R_b$$

$$U_a = (21)(21) + \frac{21(22)}{2} - 258 =$$

$$U_a = (441+231) - 258 =$$

$$U_a = 414$$

$$U_b = n_a n_b + \frac{n_a(n_a+1)}{2} - \Sigma R_a$$

$$U_b = (21)(21) + \frac{21(22)}{2} - 619$$

$$U_b = (441 + 258) - 610 =$$

$$U_b = 80$$

$$U = 80$$

U=80 is less than the table value allowed for a one-tailed test at the .05 level, so we conclude that the data is statistically significant.

APPENDIX VIII

FALL 1979 GRADE POINT RATIONS--CONTROL GROUP

MEAN GPR	MEDIAN GPR	MODE GPR
1.34	1.5	.00

FALL 1979 GRADE POINT RATIONS--TREATMENT GROUP

MEAN GPR	MEDIAN GPR	MODE GPR
1.68	2.39	.00

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